

**Reliability Improvement of Ground Fault Protection System in AC Feeding System
Using an S-Type Horn Attachment Gap**

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Insulation of an insulator used in electric railroad sometimes breaks down by surface dirt of an insulator or contact with a bird. The insulator breakdown derives a ground fault in feeding system. In order to prevent the damage by ground fault, insulators of negative feeder and protective wire have been equipped with an S-type horn up to the present. However, a concrete pole breaks down at the time of the ground fault because a spark-over voltage of the S-type horn is higher than a breakdown voltage of a concrete pole. Further, the S-type horn installed in the steel tube pole does not discharge, because the earth resistance of a steel tube pole is very small. We judged that we could solve these troubles by decreasing the power frequency spark-over voltage of the S-type horn from 12kV to 3kV. Accordingly, we have developed an attachment gap that should be used to decrease the power frequency spark-over voltage of the S-type horn from 12kV to 3kV.